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WILLIAM J. JENKS, Ph.M.

BY GEORGE M. BERINGER.

Among the sturdy pioneers and adherents to the doctrines of "religious freedom" and "the inward light," who accompanied William Penn in his emigration from England, was Thomas Jenks. He settled near Newtown, in Bucks County, Pa., his landed estate and the family home, which was built in 1732, being known as "Jenks Hall."

William J. Jenks was a direct lineal descendant of this Quaker pioneer, and was born on the 30th day of March, 1822, at "Pomona Farm," near Newtown, Pa. He was the oldest son of Michael Hutchinson Jenks and Mary Ridgway Earl Jenks. His father was a judge of the County Court, and in 1844 was elected a member of the United States Congress to represent the district of Bucks and Lehigh Counties.

His sister, Anna Earl Jenks, married Alexander Ramsey, the first Governor of Minnesota, and subsequently United States Senator and later Secretary of War under President Hayes.

The act to "Incorporate the Philadelphia College of Pharmacy" was approved March 30, 1822, and it is a remarkable and a strange, although a peculiarly fitting, coincidence that on the natal day of Wm. J. Jenks there was issued the charter of an institution with whose welfare he was to become so intimately associated, and in whose service he was to devote such a large portion of his life work.

In his youth he attended the district school of the Township of Middletown, and afterwards the academy at Newtown.

As a boy he was fond of such outdoor sports as fishing, skating, boating and hunting, which developed a good physique and a sturdy, healthy constitution, which sustained him to a ripe old age.

His scholastic education was finished at the institute of John Bullock, in Wilmington, Del. This select school was conducted by the father of the late Charles Bullock, and enjoyed an excellent reputation, and was well patronized by many of the prominent families of Friends of that day. Here he paid particular attention to the sciences, and to the study of the Latin language.

After leaving this school, in the fall of 1838, at the age of sixteen years, William J. Jenks came to Philadelphia, and at once entered the store of Smith & Hodgson, at the northeast corner of Sixth and Arch Streets, to learn the mystery and the art and science of the apothecary. This firm conducted both a retail and a wholesale drug business, and manufactured many of the pharmaceuticals and chemicals supplied to their customers. They also imported many rare drugs, some of which have since become obsolete, or nearly so. Mr. Jenks was wont to describe some of the old drawers and bottles that had accumulated in the "back store," so called, which was on Sixth Street, and contained such drugs as sagapenum, sarcocolla, bdellium, tacamahac, mummy and issue peas. Some of these had come down to them from their predecessor in business, John Biddle. This firm was composed of Daniel B. Smith and William Hodgson, Jr. Daniel B. Smith was well versed in chemistry and botany and the sciences generally, and was undoubtedly the most influential and best educated pharmacist in Philadelphia at that time. He was not only prominent in pharmaceutical circles as a writer and editor, but was greatly interested in the problems of education and social advancement of his day, and for a number of years he was a teacher at Haverford College.

William Hodgson, Jr., was an Englishman by birth, who had served his apprenticeship with the celebrated firm of John Bell & Co., of London. He is said to have been a very skilful and neat compounder and dispenser. This firm enjoyed the confidence of the leading physicians and the patronage of many of the best families of the city. This store had an established reputation, and the embryo pharmacist of that time was considered, indeed, fortunate to obtain employment therein and the knowledge and experience which the firm's business afforded.

William J. Jenks was happy in his association with these preceptors, and always spoke admiringly of their kindness and consideration for their employees. He endeavored to profit by the

opportunities afforded, and studiously and earnestly applied himself to the mastering of all details, and his thorough training in the business and duties of the pharmacist was ever afterward apparent to his friends and associates.

He attended his first course of lectures at the Philadelphia College of Pharmacy during the winter of 1839-1840, and the second in 1841-1842. The lectures in materia medica and botany were delivered by Dr. Joseph Carson, and those in chemistry, in the first course, by Dr. Franklin Bache, and in the second by Dr. William R. Fisher, who succeeded Dr. Bache who had resigned on account of his election as Professor of Chemistry in the Jefferson Medical College. In the year intervening between his attendance at college he selected a subject for his thesis and performed the experiments recorded in his inaugural essay on "*Juniperus Virginiana*," which was published in the AMERICAN JOURNAL OF PHARMACY, 1842, folio 230.

At that time the college occupied a property on Zane Street (now Filbert Street), east of Seventh Street, and the instruction consisted of lectures and such experiments as could be demonstrated on the lecture table. The students who were applicants for the degree and were coming up for examination at the end of the course, were requested to occupy the front seats, and the professor would devote about fifteen minutes before commencing his lecture in quizzing these on the instruction previously given. As there were no regular quizz masters the students were generally paired and quizzed each other.

William J. Jenks graduated in the spring of 1842. Among his classmates were Edward Parrish, who later became Professor of Pharmacy in the college, and Laurence Turnbull, who studied medicine and gained a reputation as a specialist in otology.

After graduating from the Philadelphia College of Pharmacy, Mr. Jenks continued with Smith & Hodgson as head clerk for about two years. It had been his intention to take up the study of medicine, but an intimate friend, Charles S. Ogden, desiring to engage in the wholesale drug business, a partnership under the firm name of Jenks & Ogden was formed in January, 1845, and the new firm located at 160 North Third Street.

Here a wholesale and retail drug business was successfully carried on for a number of years. The affability, genial disposition and

the recognized ability and character of Mr. Jenks gained many friends and customers. At the commencement of the Civil War, the firm met with financial embarrassment and Mr. Ogden then retired. A new partnership with Elwood Middleton was then formed, and the firm of Jenks & Middleton carried on the business for several years. After the dissolution of the latter firm, Mr. Jenks continued in the business at the same location until 1887, when, finding the jobbing business no longer satisfactory, he removed to 4043-4045 Market Street, and devoted himself exclusively to the retail drug trade, being actively engaged therein until incapacitated by his final illness.

William J. Jenks became a member of the Philadelphia College of Pharmacy in 1846, and the same year was elected as a trustee. He remained continually thereafter, for fifty-eight years, a member of the Board of Trustees. For a number of years he was secretary of the college, then second vice-president, and he was first vice-president at the time of his decease. On March 26, 1900, he was elected president of the college to succeed Charles Bullock. He immediately resigned, and in eloquent and appropriate language expressed his appreciation of the honor intended and the compliment paid by his fellow-members to his years of service, but he was firm in his conviction that the conditions now called for a younger man of energy and aggression, and his interest in the progress of the college, as well as his increasing years, admonished him against accepting the honor and duties of the office.

Shortly after his election as a trustee, Mr. Jenks was appointed a member of the Committee on Examination, and was soon made the chairman, which position he held until 1887. As chairman it became his duty to collect and arrange the committee questions and specimens. He took great pride in this work and was especially pleased in noting the increase in the number of students. "His boys," as he called them, were ever near to his heart.

It was in the work of this committee that he came in contact with the students and became endeared to them. His always pleasant, smiling, happy countenance during the examinations, proved an inspiration to many a student nervous over the finals, and restored confidence and natural ability. Many are to-day cherishing the memory of the "Grand Old Man" and his reassuring smile, who happened along with a pleasant word of encouragement just at the right time.

William J. Jenks knew personally the prominent pharmacists of Philadelphia, extending back over a period of more than half a century. His retentive memory stored away many remembrances of their peculiarities and the trade conditions existing during several generations. He greatly enjoyed relating some of the reminiscences of the days when the apothecary made many of his chemicals, powdered his drugs, spread his own plasters and priced his prescriptions in "fips" and "levies" ($6\frac{1}{4}$ and $12\frac{1}{2}$ cents) and exchanged shin plasters. The latter were small credit slips or notes issued by a number of city institutions and a few prominent business houses, and locally circulating as currency. When Boullay's process of displacement, subsequently named percolation, was introduced it met with much opposition from the druggists of Philadelphia, but Ambrose Smith championed the process and mastered it completely, and William Jenks was likewise interested in it and engaged in a number of experiments to perfect the process.

William J. Jenks was too modest to seek either political or social advancement, but his ability was too evident to be either overshadowed entirely by his diffidence or overlooked by his friends. He was elected a member of the School Board of the Tenth Ward in 1876, and a few years subsequently was selected as a member of the Thirteenth Ward School Board, and for several years served as secretary of this sectional board. He was a member of the Pennsylvania Historical Society, of the Friends' Historical Association of Philadelphia, of the Union League, the Numismatic and Antiquarian Society and the Bucks County Historical Society. For many years he was a director of the Philadelphia Drug Exchange, and was its president during the Centennial celebration in 1876. In 1887 his *Alma Mater* conferred upon him the honorary degree of Master in Pharmacy.

William J. Jenks was always of a happy, even cheerful, disposition, and his very presence was a pleasure of which his associates were sensible. Reserved, yet with an inspiring dignity, thoughtful and considerate of others' views and feelings, he enjoyed universal confidence and respect. His calm judgment, his conscientiousness, his sincerity, his friendly manner and his kindly mode of expression all bespoke the true character and the exemplification of the Christian gentleman.

William J. Jenks retained his physical strength and energy to a

remarkable degree to a ripe old age, and his memory and mental faculties remained unimpaired, as if he had discovered the secret of recurrent youth. He accomplished the difficult task of growing old most gracefully.

"Though old, he still retained
His manly sense and energy of mind.
Virtuous and wise he was, but not severe;
He still remembered he once was young:
His easy presence checked no decent joy."

In September he contracted a cold which resulted in a severe attack of pleurisy and congestion of the lungs, and later became complicated with a weakness of heart action. In the course of several weeks he rallied from this severe illness, and again took a lively interest in current events, and his friends considered him as convalescent. On Friday, October 21, 1904, in the eighty-third year of his age, he succumbed to a sudden attack of heart failure, and so another devoted, noble character in pharmaceutical circles finished his earthly career. Another of the "old guard" of Philadelphia apothecaries that maintained the honor of their profession and added renown to the Philadelphia College of Pharmacy has responded to the Master's call.

The funeral services were held on Tuesday, October 25th, at his late home, 428 South Fortieth Street, Philadelphia, and interment was made at Woodlands Cemetery.

On October 7, 1851, William J. Jenks married Lydia A. Martin, daughter of Oliver Martin. They had six children, four of whom, one daughter and three sons, survive him.

ON A PTOMAINE EXTRACTED FROM THE PUTREFYING STOMACH AND STOMACH CONTENTS OF A DOG.

BY F. A. NORTON, B.S.

During the latter part of July, 1904, the stomach of a dog supposed to have died from strychnine poisoning was sent to this laboratory for examination. About one-third of the stomach and contents was immediately examined by a modification of the Dragendorff method for strychnine, which was demonstrated to be present by both chemical and physiological tests. At this time no

putrefactive products were encountered. The portion of the stomach and contents not used was returned to the container—a screw-top Mason jar—and the jar again sealed. No prosecution was made, and the stomach still being in the laboratory the following January, a re-examination was made to determine what, if any, decomposition products of toxicological interest might be present.

The Stas-Otto method as outlined by Vaughan and Novy in their work on Cellular Toxins was employed in this examination. Reagents were tested as to purity, and solvents purified when necessary. The stomach was in good condition, though the odor and presence of considerable gas indicated putrefaction. As the jar was tightly closed so that the gas was retained, the bacterial action must have been largely anaerobic.

Strychnine was again found to be present in considerable quantity in the chloroform extract, with traces in the ether extract. However, another body of a brown resinous character giving reactions for ptomaines was obtained in limited quantity in the acid and alkaline ether extracts, in the alkaline chloroform extract, and in large quantity in the alkaline amylic alcohol extract. Benzine alone of the solvents used, failed to remove any of the substance from alkaline solution. The amylic alcohol extract yielded about two or three grammes of residue. This I subjected to the usual chemical tests for strychnine with negative results, and then proceeded to the following examination of its properties.

The extract in color was a clear dark brown. While of a resinous consistence, it was rather soft, though not sufficiently fluid to flow. The taste was intensely bitter, but more acrid than strychnine. The odor, very strong and disagreeable, resembled that of certain beetles. The extract was readily soluble in water to a clear beautiful golden-yellow solution of slightly alkaline reaction. This solution on concentration yielded under the microscope, first, yellow oil-like globules, from which later needle-shaped crystals separated out to some extent. A drop of hydrochloric acid added to a portion of the aqueous solution seemed to render the odor and color less pronounced, and on concentration on a glass slide beautiful needle-shaped crystals readily formed, arranging themselves along radiate axes. The radiate arrangement was visible to the naked eye, but a low magnification was required to distinguish the individual crystals. This readiness to form salts, together with the

slight alkalinity of the body, would indicate that it was of a basic character.

In order to determine the constancy of the above characters, I dissolved a portion of the extract in distilled water, filtered to remove slight impurities, precipitated the body with mercuric chloride solution, filtered, diffused the precipitate in distilled water, precipitated the mercury with hydrogen sulphide, filtered, rendered the filtrate slightly alkaline with sodium carbonate and extracted with amylic alcohol as before. In this treatment the mercuric chloride filtrate was colorless, while the precipitate was a light yellow. On precipitating the mercury, the filtrate again assumed a clear yellow color, and on evaporating the amylic alcohol extract I could detect no material difference between the residue and the substance as first obtained. This would seem to show that the body was of quite definite character, as given above, and very free from impurities.

I then tried the physiological action of the extract on a good-sized frog, with very pronounced results. Ten milligrammes of the substance administered by the mouth produced a stupor in four or five minutes, from which the frog appeared to entirely recover in about two hours. Twenty milligrammes more was then given. Immediate stupor was produced, accompanied by slowing of the respiration and rate of the heart beat, congestion of blood in the extremities and finally death in about an hour. The frog was, at any time during this experiment, capable of reacting toward reflexes.

The reaction of the body to the following reagents employed in alkaloid tests was then determined. Unless otherwise stated, in each case a filtered aqueous solution of the amylic alcohol extract was employed for the test:

Phosphotungstic Acid.—Yellowish-white precipitate, amorphous, insoluble in excess, but soluble in ammonia.

Picric Acid.—No immediate precipitate, but on standing a slight yellow flocculent precipitate.

Tannic Acid.—An immediate dirty white flocculent precipitate.

Potassium Mercuric Iodide.—A turbidity was first produced, followed after a time by a light yellow flocculent precipitate.

Gold Chloride.—An immediate heavy brown precipitate was produced. The supernatant liquid, on standing a few minutes, became of a beautiful lavender color, and after a time a lavender amorphous precipitate settled out, leaving the liquid clear.

Platinum Chloride.—No immediate precipitate, but on standing some time a slight yellowish brown flocculent precipitate was produced.

Mercuric Chloride.—An immediate voluminous yellow precipitate.

Iodine in Potassium Iodide.—A slight brown flocculent precipitate.

Ferric Chloride and Potassium Ferricyanide.—Immediate bluish green color, followed by separation of an intense Berlin blue amorphous precipitate.

Potassium Bichromate in Concentrated Sulphuric Acid.—Brownish green color with odor of butyric acid. The solid extract gave a beautiful deep green color, resembling the test for morphine.

Froehde's Reagent.—A blue color was produced.

Chlorine Water.—A reddish color, disappearing on standing or on heating.

Sulphuric Acid.—No apparent reaction.

Nitric Acid.—Intensified yellow color, yellow residue on evaporation.

Hydrochloric Acid.—Apparent slight discharge of color; needle-shaped crystals were formed on concentration of the solution.

A further examination of the substance as to whether more than one ptomaine was present, and as to the ultimate composition of the body, together with other tests which might have been of interest, was prevented by exhaustion of the amylic alcohol residue. However, the presence, as a result of putrefactive action, of a basic body of alkaloidal character and marked physiological action is shown.

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THE CULTIVATION OF SAFFRON IN LEBANON COUNTY, PENNSYLVANIA.

BY JOSEPH L. LEMBERGER, Lebanon, Pa.

CROCUS.—SAFFRON.

The stigmas of *Crocus Sativus*, U. S.

The dried stigmas and top of the style of *Crocus Sativus*, Br.; Safran, French, German; Zafferano, Ital.; Azafran, Sp.; Hebrew, קַרְכֹּם (Karkôm); Gr., Κρόκος (*Crocus*), and Pennsylvania German, Saffrig.

In treating the subject referred to me, I am inclined to believe that some pre-history of this interesting drug will be acceptable—as I have failed anywhere to find a complete history of saffron; it is true that all of our dispensatories have given some attention, treating the subject as fully as required for the general reader and student. In an article quoted from the *Pharmaceutical Journal*, published in Vol. XIV, *AMERICAN JOURNAL OF PHARMACY*, 1848, which covers the subject fairly well and describes the cultivation of saffron in France and Austria, the kind of soil and physical condition best adapted; the diseases to which the corms are subject, the insects or parasites contributory to these conditions, and a partial remedy; the soils favorable, some of the adulterations found, and names the uses for which saffron is employed.

I may be permitted to quote the following from an ancient source of information, after giving the Persian, Greek and Hebrew names, and finding no difficulty tracing the name to the modern *crocus* or saffron. The writer states that all these names, Persian Karkom, Greek Krokos, Hebrew Karkôm, had the one common origin, saffron having from the earliest times been cultivated in Asiatic countries as it still is in Persia and Cashmere, and especially in ancient Cilicia. *Crocus* is mentioned by Hippocrates and Theophrastus. Dioscorides describes the different kinds of it, and Pliny says, "that the benches of the public theatres were strewn with saffron, indeed the ancients frequently made use of this flower in perfumes. Not only saloons, theatres and places which were to be filled with a pleasant fragrance were strewn with this substance, but all sorts of vinous tinctures retaining the scent were made of it, and this costly perfume was poured into small fountains. Even fruits and confitures placed before guests and the ornaments of the rooms were spread over with it." It was used for the same purposes as the modern "Pot-Pourri."

It is associated with fragrant substances in Holy Writ, a passage in Solomon's Song, chapter 4, verse 14.

Much might be quoted of most interesting information as indicating the high esteem in which saffron was held by the ancients, but I dare not depart any further from my subject as related to a modern period, and especially to our own time. During the past century a great deal of saffron was cultivated in my section of Pennsylvania—and no product of the garden was more profitable; it was

the one product that was, at least, worth its weight in silver, and to this day I do not purchase the home product in any other way. Saffron is placed on one scale pan and silver upon the other, and, as we say, what it draws, the seller receives. You may question this commercial singularity—it is that way or no way; unless the equivalent is proven to the satisfaction of the seller. In my county—Lebanon—the cultivation of saffron is declining; it is dying out with the generation of the Pennsylvania German housewives now passing, and as the care of the saffron bed is generally confined to the female head of the household for the reason that a portion of the garden (the woman's domain) is usually set apart for this purpose. The girls growing up to take their places, prefer attending crops not requiring the tedious care that saffron does; strawberries, and other small fruits having more attraction for them, which, while not quite as profitable, do not require the same amount of labor.

I took occasion to visit several homes where were found saffron beds, just at the season (late in October) while a few flowers were still to be found. I am, therefore, able to give the following facts: The soil is first well prepared (indeed the same preparation must be made as is needed for a garden), much attention is given to fertilizing with well-rotted barnyard manure, the soil thoroughly worked with spade and rake, and after this preparatory work the bulbs are planted as early in the spring as possible; the usual custom is to place 6 inches apart in drills, about 5 to 8 inches deep, 6 inches apart between the rows, and evenly covered. The bulbs rest through the summer thus planted, but the same bed is utilized for lettuce as a first crop, cucumber or any vegetable that will mature, so that the bed can be cleared by early fall. The saffron patch I saw, and have a note of, had produced a crop of early radishes, some lettuce and a large crop of cucumbers; without digging deep, the soil was again lightly worked and made mellow, as was done for spring planting, after removing the refuse vines and weeds; in a few weeks thereafter, about the time of the early autumn frosts in the latter part of September or October, the sombreness of the season is cheered by the growth of the crocus; when the flower and leaf appear almost simultaneously and as soon as the flower matures, the real labor commences. It is declared by growers that when the flower appears as soon as the foliage, the yield is most abundant; the flowers are plucked daily, early in the morning, and it is usually

made the evening work of mother, and other helpers, to separate the stigmas. The gathering of the flower covers eight or ten days, sometimes longer, depending largely upon weather conditions; much more tedious is the caring for the trifid stigma; there is an art in rightly plucking and separating it from the yellow style; some women are quite expert in this branch, as was demonstrated to me on my visit, and right here is where our commercial friends in the saffron countries abroad are not as careful as they might be. Cheap, ignorant labor is largely responsible for the quality of the saffron sold in the American market. With care saffron can be kept clean and clear of accidental, to say nothing of intentional, adulteration. It is very easy to adulterate saffron at least 25 per cent. before the flower is dropped in the operation of plucking the stigma, as any one familiar with the flower can appreciate. You have seen the dried corolla and other parts of the flower mixed in saffron. I have a specimen of commercial saffron which you will all pass as a good quality. It is in my judgment as good as usually found in the market. I also present for your inspection a portion of a specially selected article, bought several years ago, and saved to prove that pure unadulterated saffron may be produced.

It will be interesting for some of the readers to know what are the uses made of saffron by the housekeeper in our Pennsylvania German counties, and especially Lebanon, Lancaster and Berks and possibly sections of other counties. They have the ancient custom of employing the article in culinary dishes. A noodle soup, chicken and other stews are not considered up to standard if not flavored and colored with saffron; and when measles and kindred exanthematous diseases visit the household, saffron tea is the first remedy to promote eruption, and very frequently a handy remedy is found in its use as an emmenagogue. When the home demand is cared for and neighbors accommodated, the surplus may be sold to the druggist or country merchant.

WOULD THE CULTURE OF SAFFRON PAY?

The garden patch I saw and have associated with the following figures, will also be of interest: Its area was 12 x 14 feet, planted as indicated, and produced 1,500 to 2,000 flowers per season; this particular patch had the rows 15 inches apart. The estimate of flowers produced varied according to weather conditions, and was

based on the average of a number of years. The money value of this 1-259th of an acre was between \$9.00 and \$10.00. A simple sum in arithmetic will prove the value of saffron culture, if systematically conducted with a view of making it an agricultural industry.

Custom and superstition go hand in hand with saffron culture in Pennsylvania. It is also interesting to learn that the foremothers of the present growers of the saffron realized the necessity for some remedy to counteract the diseases the bulbs were liable to. As a matter of fact, the two principal diseases are the dry-rot and the other the death; the French name it *la mort*, caused by parasites or insects; tradition has taught our people to plant garlic (*Allium sativum*) and allow it to occupy intervals between the rows for a part of the season. The mole or ground-rat sometimes assails the saffron bed also, and to meet this enemy the same teacher has arranged that they must bury a quarter of a loaf of bread in the saffron patch. About the time of picking saffron, when driving through the country, you will readily observe where attention is given to saffron culture. It is the invariable rule to throw the useless flowers, after separating the stigmas, into the highway. I had a curiosity to know why this was so generally done. The answer was, "the old people always did so, and we carry on the custom." When further pressed for a reason, I was told it was done to perpetuate good luck. To insure future crops, the flowers must be scattered, not burned nor thrown upon the dunghill to rot.

SUBSTITUTION OF AMERICAN CENTAURY.

BY RODNEY H. TRUE.

At the request of a prominent Eastern drug house, a number of samples of American centaury have been examined in the laboratory of Drug Plant Investigations of the Bureau of Plant Industry, the differing appearance of herbs going by this name having aroused a suspicion that a partial substitution had taken place. Samples of the types involved were submitted to Dr. J. N. Rose of the National Herbarium, who found that in large part the material represented consisted of *Rhexia mariana*, commonly known as deer grass or meadow beauty, the remainder being the true article, *Sabbatia angularis*. Samples from five other sources gave, from a total number of

eight samples seen, three of the spurious article and five of the genuine.

Sabbatia angularis (L.), Pursh,¹ a member of the gentian family, is found in rich soil from New York and Pennsylvania to Ontario and Michigan and southward to Florida, Indian Territory and Louisiana. It reaches a height of from 2 to 3 feet, flowering in July and August, the bloom being rose-pink in color with a central greenish star.

Rhexia mariana L.,² a member of the *Melastomaceæ*, grows in sandy swamps from Long Island and New Jersey to Florida, Illinois, Missouri and Texas. It reaches a height of from 1 to 2 feet, flowering from June to September and bearing pale purplish flowers.

It will be seen that the plants have some striking points in common. They occupy the same territory over a wide area; the time of flowering overlaps; the stature is not distinctive, and the general coloring of the flowers is somewhat similar. In *Sabbatia angularis* the stem is square and narrowly winged; in *Rhexia mariana* it is round, but in the nearly related species, *R. virginica* L., which seemed to constitute the bulk of one sample, the stem is square. Hence, it would not be altogether surprising if ignorant collectors had to some degree confused the plants concerned.

It is, however, not difficult to distinguish the spurious article from the genuine. The following points of difference are readily detected in the dry herb, and may be observed in the chopped articles:

(1) *Sabbatia* herb has a strong, clean, bitter taste, which is quickly noticed on chewing. *Rhexia* herb is not bitter, but lacks a distinctive taste of any kind. This is a quick and convenient way of distinguishing them in the warehouse.

(2) In *Sabbatia*, portions of the flowers, turned reddish-yellow in drying, are to be seen and the oblong seed vessels enclosed about the base by the remnants of the calyx containing a large number of small seeds. In *Rhexia*, the seed vessel enclosed by the remnant of the calyx consists of a rounded basal portion passing upward into a narrower neck-like part which is expanded again into a flaring portion, on the margins of which are situated the remnants of the calyx

¹ "Britton's Manual of the Flora of the Northern States and Canada," p. 730, 1901.

² Ibid, p. 651.

lobes. This flask-shaped structure is somewhat ribbed, and is sparingly beset by bristly hairs. As seen in the samples inspected, the *Rhexia* seems to be a more stemmy article than the *Sabbatia*.

U. S. DEPARTMENT OF AGRICULTURE,

December 31, 1904.

ON THE PAST, PRESENT AND FUTURE OF PHARMACEUTICAL DEGREES IN AMERICA.

BY M. I. WILBERT,

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At no period during the thirty or more years that the question has been actively under discussion has the subject of pharmaceutical titles attracted, or received, greater attention than is being given it at the present time.

The direct cause for this unusual interest is no doubt to be found in the greater attention that is being devoted to the subject of pharmaceutical education, its shortcomings and its ultimate possibilities, and also to a more thorough understanding of the very great differences that exist, in the entrance requirements that are asked, the instruction that is given and the degrees that are conferred by the various pharmaceutical schools now existing.

Appreciating the fact that the history of any given subject may have an important bearing on the probable solution of questions arising in connection with the same, and believing, furthermore, that the history of the origin and uses of pharmaceutical titles in America might have a peculiar and timely interest for all concerned this contribution is offered with the hope that it may prove interesting, and that the ideas and opinions of some of the earlier leaders of our profession may serve to indicate a rational and generally acceptable solution of the present controversy.

Dr. John Morgan, who is properly recognized as the originator of pharmacy in this country, returned to Philadelphia in 1765, where he was the first to institute the European practice of writing prescriptions and of having them compounded by competent apothecaries. This practice, even in Philadelphia, spread slowly, and it was more than fifty years later, in 1816, before any attempt was made to teach pharmacy by means of a regular course of lectures. Five years later, on February 21, 1821, the Board of Trustees of

the University of Pennsylvania, acting on a recommendation from the Professors of the Medical Faculty, adopted a resolution instituting the degree of Master of Pharmacy, to be conferred by the Board of Trustees on such persons exercising, or intending to exercise, the profession of an apothecary as are or shall be duly qualified to receive the same. Provisions were also made for instituting a course of lectures on chemistry, materia medica and pharmacy in the University, and all future candidates for the degree, in addition to serving three years' apprenticeship with a respectable apothecary or a master of pharmacy, were to be required to attend at least two courses of lectures in the new school.

At the ensuing medical commencement in April, 1821, sixteen gentlemen, apothecaries, the majority of them resident in the then city of Philadelphia, received the degree of Master of Pharmacy.

This attempt on the part of the Trustees of the University to improve and to elevate the practice of pharmacy aroused the enterprising spirit of the druggists and apothecaries of Philadelphia and led them to found a college of their own, "for the two-fold purpose of providing a system of instruction in pharmacy, and subjecting themselves to regulations in their business."

One of the most frequently quoted objections to the proposed course on pharmacy in the University was the fact that the trustees and professors proposed to bestow distinguishing titles on the graduates. So deeply was this objection to distinctive titles rooted in the minds of the founders of the new school of pharmacy that they positively refused to include testimonials, degrees or awards in the provisions of their school. It was not until some years after Dr. George B. Wood had been elected to fill the chair of chemistry in the college that any concerted attempt was made to introduce some form of distinction or award to such of the students as had completed the prescribed course and had undergone a satisfactory examination.

So far as known, this subject was first brought to the attention of the College in an address to the members of the Philadelphia College of Pharmacy, by Dr. George B. Wood, delivered November 16 1824. In the course of this address, while speaking of the requirements of the institution, Dr. Wood said: "In all great seminaries of learning and science it is a practice sanctioned by the experience of centuries to reward by some public testimonial of approbation

those students whose industrious application and correct deportment have given satisfaction to their instructors. (The hope of distinction is perhaps the strongest passion of the youthful mind; and even that honor, which an ordinary degree in the arts confers, is sought after with an ardor and perseverance which they who have forgotten the feelings of their earlier years can seldom fully appreciate.)

"The power of conferring degrees, attached to all collegiate institutions, may be considered almost an essential part of their constitution, and the practice is certainly essential, as a general rule, to their successful operation. The school of pharmacy cannot be regarded as an exception. I do not think I am going too far when I say that it will never flourish until this practice is adopted.

"To the young apothecary, a degree from the college would be desirable, not only as an honor, but also as an effective instrument for the promotion of his success in business. (When the public are generally informed, as they some time undoubtedly will be, of the nature and designs of the institution, it cannot but happen that a preference will be shown for those to whose knowledge and skill its testimonial can be advanced; and at some future period a degree in pharmacy may be as indispensable to the apothecary as that in medicine now is to the physician.) In order, however, that the degree may have the greatest possible weight in the opinions of men it should never be conferred on the student till he have passed through a certain course of study and practice united, and, by an examination before competent judges, shall have shown himself worthy of the honor. It should, moreover, be confined to those whose moral character is unexceptionable." The suggestions made in this address were acted on but slowly. It was more than a year later, on January 31, 1826, before the members of the College, recognizing the necessity of such a move, finally adopted a resolution that in future all students who had completed the attendance on two courses of lectures, had passed a satisfactory examination in the branches taught and were able to furnish satisfactory evidence that they had been engaged in the business of an apothecary, were to be adjudged "Graduates in the Philadelphia College of Pharmacy." It was fully half a century later, however, before the use of such a certificate of proficiency, to generally promote the business of a pharmacist, was considered legitimate, and we of

to-day, more than eighty years after the address was delivered, are only now beginning to appreciate the necessity of some such evidence of systematic instruction in the sciences relating to pharmacy before an applicant be admitted to the practice of our profession.

It was on August 23, 1826, that the then president, Mr. Daniel B. Smith, conferred the degree of Graduate in Pharmacy, or "Graduate in the Philadelphia College of Pharmacy," on the first successful candidates, comprised of a class of three young men.

On this occasion the president delivered an interesting, and now extremely valuable address, dealing largely with the conditions as they then existed, and outlining to some extent the objects of the College and its ambitions for future improvements. As much of the material contained in this address has a direct bearing on the subject under discussion, it may be well to quote from it quite extensively. In speaking of the objects of the College Mr. Smith said: "The mark at which we are aiming is, however, much above the standard of any present attainments. Before we can assume to compete with the kindred institutions of the Old World our system of scientific instruction must be extended to other branches of natural history and rendered more thorough and minute in those which are already taught."

"Our diploma is, of course, but an honorary distinction, that confers no privileges or advantages beyond those which public opinion accords to the well instructed and intelligent. It bestows no title, for it was the design of the college to avoid any name which may hereafter acquire a peculiar meaning, and become the designation of a new class analogous to the English apothecary. (In attempting to avoid this danger, it has committed what may perhaps be esteemed a blunder by establishing a distinction without giving to it a specific name, and simply declaring that the successful candidate is a graduate in the college.)"

The example set by the Philadelphia College of Pharmacy was closely followed by the other schools as founded, and it was not until about 1873 that any concerted attempt was made to confer what might be termed a collegiate degree for a course in pharmacy.

In the early seventies no less than three, then newly founded, schools of pharmacy began to confer the title Phar. D. on their graduates. As was to be expected, this rather startling innovation

met with considerable opposition from the officers and representatives of the older and more conservative colleges of pharmacy. The meetings of the American Pharmaceutical Association, and the accompanying conferences of the representatives of teaching colleges of pharmacy were frequently burdened with lengthy and at times caustic discussions relating to this, at that time, unpopular innovation.

In this connection it may be of interest to refer to the discussion on the admission of the delegate from the Georgetown College of Pharmacy, in the Proceedings of the American Pharmaceutical Association for 1872, the report of the meetings of the representatives of teaching colleges of pharmacy in 1874, the report of the special committee appointed by the Philadelphia College of Pharmacy in 1874, to inquire into the subject of granting the title of Doctor in Pharmacy, published in the AMERICAN JOURNAL OF PHARMACY, and the discussion on reputed irregularities in granting the title of Doctor in Pharmacy, with report of special committee to inquire into and report on the facts in the case, published in the Proceedings of the American Pharmaceutical Association for 1875 and 1876.

How deeply the leading pharmacists of that period felt on the subject of pharmaceutical titles is evidenced by the opinions expressed by Prof. Wm. Procter, Jr., in one of his last editorials in which, in answer to an inquiry on the subject, he said: "The value set upon titles varies much with individuals; so much so, indeed, that many will work more earnestly for a title than for more important things. If their possession carried with it the knowledge and dignity which sometimes it is presumed to represent, then titles might well be sought for as desirable evidence of accomplished work.

"Pharmacy is to a large extent an art which every well-qualified apothecary masters. Its pursuit involves so much scientific knowledge that it may very properly be called a profession, and he who properly practises the art is a master in pharmacy."

Professor Procter further suggested that the young men be moderate in their desire for titles, and that they be satisfied with Graduate or Bachelor of Pharmacy, and that they, after a due probationary period, aspire to the more elevated and more dignified degree of Master of Pharmacy.

The title of Doctor of Pharmacy, as a purely honorary distinction, was first conferred by the Maryland College of Pharmacy some time

before 1870. Prof. Edward Parrish, in referring to this distinction in 1871, said: "A degree of Doctor of Pharmacy seems appropriate to place our profession on a par with those of medicine and of dentistry.)"

"This has already been granted to a few distinguished pharmacists by the Maryland College of Pharmacy, but would seem well suited to designate all graduates in pharmacy who have devoted themselves creditably to the legitimate practice of their profession for a term of years. A title of this kind would hardly seem pretentious if held in reserve by the college until their graduates had attained a well-recognized professional standing and the prospect of attaining it would be an honorable incentive to professional effort."

The special committee appointed by the Board of Trustees of the Philadelphia College of Pharmacy in 1874 to consider the subject of conferring the degree of Doctor of Pharmacy on the graduates of the College, in their report, deprecated the adoption of the proposed title, and enumerated, among other reasons, the fact that pharmacy and the practice of medicine being so closely connected, the title would tend to confusion. The committee recommended that the College adhere to the time-honored practice of conferring the title of Graduate in Pharmacy, but also recommended the conferring of an additional degree, not designated, on graduates of the College who, by pursuing some original investigations, had demonstrated their fitness for the same. This latter recommendation was acted on the following year, when the degree of Master in Pharmacy, in course, was provided for. Eleven years later, on May 4, 1886, the degree of Master in Pharmacy "Honoris Causa" was instituted, and in the following year, February 1, 1887, the Philadelphia College of Pharmacy conferred its first honorary degree.

Recurring now for a few moments to the now generally accepted propriety of exhibiting the evidence of having attended a college of pharmacy, it may be interesting to note that as late as 1874 this practice was deprecated by a writer in, and also the editor of, the *Chicago Pharmacist*, one of the predecessors of the *Western Druggist*.

Prof. John M. Maisch, the editor of the *AMERICAN JOURNAL OF PHARMACY*, contended, in opposition, that the number of graduates from colleges of pharmacy had increased to such an extent and the opportunities for attending schools of this kind had become so numerous that there was little or no reason why graduates from

pharmaceutical schools should not display the evidence of their superior interest in their calling.

Of the present status of Pharmaceutical Degrees little need be said in addition to what has already been pointed out by Prof. J. T. McGill in his paper on "What Degrees should be conferred by Schools of Pharmacy," read before the section on Education and Legislation of the American Pharmaceutical Association, at Kansas City, in 1904.

Of the origin of the several titles it may be said that Graduate in Pharmacy was undoubtedly suggested by the title "Pharmacien" conferred by the French schools of pharmacy. This will appear all the more probable when we remember the close relations that existed between the founders of the Philadelphia College of Pharmacy and the products and writings of the French pharmacists of their time. The title Pharmaceutical Chemist is generally used in England and is awarded by the Pharmaceutical Society on all that successfully pass the major examinations. Master of Pharmacy has been used for many years in several of the larger countries of Europe, particularly in Russia and in Austria, and its more recent use in this country was probably suggested by the communications of Professor Dragendorff on the subject of pharmaceutical titles. The titles Bachelor and Doctor are generally considered to be of academic origin, and for academic use, and for this reason there has been much and varied opposition to their use in purely technical schools.

The rather promiscuous use of the title Doctor, by colleges of pharmacy, is particularly to be deplored, and despite what Professor Remington, and more recently, Professor Hynson, have had to say in favor of conferring the degree of Doctor on graduates of colleges of pharmacy, there appears to be a peculiar unfitness about this particular title that makes its use for graduates in pharmacy especially undesirable.

The objectionable features connected with the title Phar. D. are more particularly evidenced if we review the dictionary definitions for the use of the word Doctor. Lexicographers tell us that a doctor is a teacher, an instructor, a learned man, a person endowed by a university with a diploma certifying to his proficiency in the sciences or recognizing his position as a teacher. The evident derivation of the word, in this connection at least, is such that it can hardly be made applicable to the acquirements and practices of the retail pharmacist.

There are, it is true, other definitions for the word. The same lexicographers tell us that a doctor is a person duly licensed to practise medicine or surgery, or a person duly qualified and experienced in the treatment of diseases. Under this somewhat popularized definition we may very properly include the M.D. or doctor of medicine; the D.D.S., vulgarly speaking, the tooth doctor; and the D.V.S. or horse doctor, for the definition does not confine or limit the definition of diseases to diseases of human beings. The P.D., on the other hand, would necessarily be restricted under this definition to the treatment of drugs, and under this interpretation we might possibly apply the corresponding definition of the verb to doctor; that is, to disguise by mixture or manipulation, to alter for the purpose of deception, to cook up, to tamper with, to adulterate.

Surely no one having the interests of pharmacy at heart can or will countenance such an interpretation of the objects of our vocation. If pharmacy is to be our occupation, and if the occupation has been and is a legitimate and honorable one, why should we object to being called pharmacists, and why should we attempt to appropriate titles that are not in harmony with the requirements and objects of our occupation? Despite the fact that the title *Phar. D.* has been conferred in this country for upwards of thirty years on the graduating classes in colleges of pharmacy, and during that time has probably been conferred on thousands of graduates, it certainly has signally failed to be recognized or appreciated by the mass of people who have come in contact with, or have required the services of, these men.

The title *Pharmacist*, on the other hand, has become recognized as a proper and honorable one. The occupation of the pharmacist, as an occupation, is much more in keeping with that of the chemist, having bred and fostered the latter, it would be quite appropriate, therefore, to adopt or to continue the use of pharmaceutical chemist, providing we were not quite content with the now time-honored Graduate in Pharmacy. In this connection we should always remember that we cannot expect to raise our own individual standing, or the standing of those dependent on us, by attempting to bring the conditions of our surroundings down to our particular level; we must, on the other hand, attempt by all the means at our command, to raise ourselves and others in our particular line, up to or even above the standards of requirement for the classes with

which we wish to come in competition or with whom we wish to associate.

The question then naturally arises: What of the future? are we to be content with present educational requirements, and are our successors in the same field to be satisfied with the degree of Ph.G., or Ph.C.? Certainly not. (The future American pharmacist will be, must be, a truly educated and highly scientific man. With the ever increasing demands for specialization there will be a corresponding demand for more specialized education along chemical and pharmaceutical lines; fully in harmony with that given in all other lines requiring specialized instruction or education. With this tendency to specialization there is a corresponding tendency towards concentration, particularly along educational lines. This tendency having once been fully appreciated, it will rapidly develop, and the time will not be far distant when by a proper selection of scientific courses at any of our larger universities the B.A., or perhaps only the M.A., may gain for himself an honorable and fitting title and sufficient technical knowledge to properly conduct a dispensing pharmacy and, in addition, make such contributions to the advancement of his own particular branch or branches of science as will enable him to do honor to the degree of Doctor of Philosophy, that he may rightfully claim to be his.

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THE IMPORTANCE OF INSURANCE TO PHARMACISTS.

By J. B. MOORE.

FIRE INSURANCE.

Every pharmacist, business man and, in fact, every person possessing property of any value, should have it insured in some good and reliable company. If he is not able to take a policy for the whole amount of the property he should have it insured for such part as he can afford to carry. This should be done not only in compliance

with the dictates of common sense, prudence and good business judgment as a protection against loss by fire, which may occur at any time and usually when least expected, but also for the peace of mind and sense of security which it affords.

When you are properly insured you will not be greatly excited every time you see a chimney on fire or smoke issuing from the doors and windows of a neighboring house when they are making their morning fire, or when you hear the sound of the bells of a fire engine passing in the immediate vicinity.

Many persons are often deterred from taking out fire insurance because they imagine they are so careful and watchful in the management of their fires that the occurrence of a destructive fire upon their premises is next to an impossibility. Hence, they repose in confidence, inspired by a false sense of security, and apparently unmindful of the fact that neighbors, their servants and employees may not all be such careful and prudent folks as themselves.

When I first started in business I was, like many other young men, rather careless and indifferent about fire insurance. In those days, however, insurance was not so popular and people did not pay the same attention to it as they do nowadays, so I conducted my business for a number of years without any insurance, either upon the stock and fixtures of my store or upon my household goods, an omission which I now consider an important mistake of my life; fortunately, however, no evil results followed. I was influenced in the matter by just such erroneous and misleading notions as I have mentioned above, although on one or two occasions I came very near having a fire in my cellar which, if it had not been extinguished in time, might have stripped me of all my earthly possessions.

Notwithstanding this timely warning, I still neglected from day to day my insurance, until one cold and blustery morning I noticed smoke issuing in dense volumes from a neighbor's chimney only a short distance away, and the wind blowing quite a gale in the direction of my store. I became alarmed, naturally, until I ascertained that it was simply the chimney that was on fire. I hastened at once to the office of a reliable insurance company and secured a suitable policy which covered my household goods as well as my stock and fixtures, which insurance I maintained ever afterwards.

An ambitious and industrious young man may commence and by close attention build up quite a prosperous business—a fire occurs

and destroys everything he has and, as he is *not* insured, what is to become of him? He has lost all and is without reserve capital to fall back upon to refit and restock another store. The very building which he occupied has been destroyed and he is left neither business, money, nor perhaps home with maybe a wife and small children to take care of and provide for. Under these distressing circumstances he may not have a kind and generous friend to appeal to for aid, for friends at a time like this are generally very scarce.

The friend who would have been willing to have loaned you in the days of your prosperity a thousand dollars, when you didn't need it, would not now loan you a dollar. He would probably not even as much as give his sympathy, for he would more than likely say, "Served you right. Why didn't you have your property insured as any sensible and good business man would have done; for the sake of a few paltry dollars you neglected to perform one of the most important business duties of your life, which was to have your stock and fixtures and your household goods insured as soon as they were *put in place*."

In taking out your insurance policy do not make the mistake that many persons do of greatly overestimating the actual value of your property, but rather take the exact cost with an allowance for such increase of stock as you would reasonably expect from the growth of the business during the year or period for which you are insured. You may have a stock which at a liberal valuation is worth \$3,000, and you have it insured for \$5,000 or \$6,000, thus encumbering yourself with a premium nearly double, which you will have to pay every year and from the half of which you will never derive any benefit in case of loss by fire, because all first-class and reliable insurance companies ignore all claims for imaginary losses.

Insurance companies and their adjusters thoroughly understand their business and are very quick to detect any attempt at deception or fraud; and the fact of a person having his property insured greatly above its value at once excites the distrust and suspicion of the company and its adjusters as savoring of an attempt to defraud, which may militate against your securing a generous or even a fair adjustment of your loss.

If you show the least disposition to take any undue advantage of the company they will be likely to fight you at every step of the adjudication. All of your statements of claims for damages have

to be made under oath, so that any attempt to sustain an unfair claim will make it very unpleasant and embarrassing, if not humiliating, for you. Hence I would advise you to take the warning and keep out of all such embarrassing predicaments.

In life insurance a man can value his life at any amount he chooses, and the company issuing the policy is obliged to pay the claim in full unless it can be proven that the insured had resorted to misrepresentation and fraud to secure the policy. But not so in fire insurance. The claim for loss has to be sustained by actual proof of the amount of damage.

This wise and conservative rule of fire insurance companies in discriminating against and positively refusing to pay all exaggerated losses claimed upon excessive insurance policies, prevents many conflagrations. If they made no resistance and paid all such losses it would offer a premium to incendiarism, and neither our lives nor our property would be safe at any time.

There are thousands of dishonest and heartless people who would have their stock of goods, furniture and other property insured for excessive amounts, and then deliberately apply the torch for the purpose of securing the large amount of insurance, regardless of consequences, endangering the safety of the lives and property of a whole neighborhood, for when a fire is once started, and especially at a time of high winds, no one can foretell where it may end, or what loss of property and life it may entail.

So we must all concede that this prudence and conservatism on the part of insurance companies is just and commendable and not for their own interest alone, but for the protection, safety and welfare of the insured.

Many persons think that insurance companies are often unfair and unjust in their adjudication of losses, but I believe that in most cases of this kind it is due to there being a condition of confusion in the facts or circumstances of the case which interferes with a clear and accurate estimate of the loss. For instance, a person may not have had an inventory of his stock taken, or not for a number of years, and there really may be no correct or reliable data to guide him in estimating the loss, and so may have entertained a very exalted and erroneous idea of his loss. In all such cases doubt and dissatisfaction are sure to result. From what I have learned from many persons who have been so unfortunate to have had losses by

fire, I am led to believe that the insurance companies treated them generously. In fact, their success and popularity, even their very existence, depend upon their justice and fair dealing toward the insured. But we are all apt to think we don't get enough.

Thus it will be readily seen by any intelligent and reasonable person of what momentous importance fire insurance is to us all. And it is not so much to the rich property holders that fire insurance appeals with the greatest force, but to the man of limited means who has only his stock and fixtures, with perhaps the property he occupies. If he should lose it by fire it would deprive him of the means of making a livelihood and leave him in dire distress. Yet it is unfortunately just this class of our citizens who, on account of their scarcity of means and consequent inability to pay the premium on an insurance policy, are the most likely to neglect to protect themselves by fire insurance.

Whereas, if a man of wealth should lose a whole block of houses by a disastrous conflagration, and not be insured, and he still has another block in his possession, he of course will feel the loss very seriously and it will be the source of much grief and regret to him, which, however, he will soon forget and he may find much consolation in the thought that it might have been still more serious.

The best and wisest business man will sometimes neglect and postpone the performance of an important act which may be followed by the most disastrous consequences, but he takes chances, hoping for the best. Many of us are afflicted with this weakness of procrastination, unmindful of the old adage—"What is to be done to-morrow should be done to day." When, under such circumstances, misfortune befalls us, we have no sympathizers. Everybody is ready to say "it served him right," not having charity enough to think that under similar circumstances they might have been guilty of the same omission.

Fire insurance should never be deferred or neglected.

LIFE INSURANCE.

I will now offer a few hints in regard to the importance of life insurance. Although the latter is not of such imperative necessity at the incipency of his business career as the former, yet if he has a wife and children it should receive his attention at the earliest possible time that he is able to take out a policy, which, if small, he

should increase at every available opportunity. If he has a poor widowed mother or invalid sister he should, as soon as he is able, make some provision in the form of a life insurance policy for their support after he is gone, so that they will not be left in poverty and distress.

This, of course, is not obligatory, but the natural promptings of humanity and a good kind heart should make it so. The provision for your immediate family, however, should be secured at the earliest possible moment, for you know not when the fatal hour may come, and because the premium in life insurance up to 30 or 35 years of age is small. Therefore, if you are doing only a moderately fair business you can take out a policy for a few thousand dollars and you will hardly feel the payment of premiums, as you can have them made payable quarterly, half-yearly or annually. While your means are limited I would advise you to take out a policy on the life plan, as in this form your premium will be lighter. Endowment policies are much more expensive, but one of these can be taken out later when it won't draw so hard upon your exchequer.

There is hardly anything in which you can invest your money that will be more secure or that will pay you a better interest than life insurance. Besides, you will experience much peace of mind and comfort in knowing that in case of your untimely death your wife and family are provided for, although you may not have an additional dollar in savings to leave them.

After you have liberally provided yourself with life insurance you can enjoy life better and be happier, and you and your family can indulge a little more freely in life's pleasures. Whereas, if you are not insured you may have to exercise the most rigorous and even painful economy, and often be obliged to deprive yourselves of necessities at the table and in dress, and also many little pleasures and enjoyments, in order to save as much as possible for the future.

While you are young and premiums are low in life insurance, and you are still in such condition of health as to give you ready acceptance into the best companies, and you have been in business a few years with fairly easy circumstances, and are able to afford it, I would then advise you by all means to take out a ten- or fifteen-year endowment policy. The premium on this will greatly exceed your life policy, but you will now be better able to pay it. You should make the amount of your policy as large as you feel able to

pay the premium upon, without the possibility of embarrassing yourself financially. This policy will come due and payable to you at a time in your life, perhaps, when you need it most, and be invaluable to you and a credit to your foresight and good judgment. Besides, you could not invest your earnings in anything that would pay you so well.

There are, I understand, several kinds of endowment policies. I would, therefore, advise you by all means before investing in one to investigate thoroughly and ascertain from proper sources which is the most desirable. In all matters of this kind it behooves you to be prudent and cautious, as it is always the "first step that costs." Don't invest your money thoughtlessly and heedlessly in anything. Remember that when you part with your money you say "Good-bye" to your best friend.

Stocks are dangerous and often fatal to dabble in. Real estate is uncertain and troublesome, and unless you are a good judge of it and understand handling it, is not desirable. Besides, you may not be able to get sufficient money together in a lump at one time to make the first payment on a purchase of a piece of real estate. If you should happen to be so fortunate as to have a little stagnant capital you hardly know what to do with, or where to place it, in order to draw interest, and you finally put it in bonds, mortgages, ground rents, etc., they will pay you only 4 or 5 per cent. interest; so that I cannot call to mind anything that is better than life or endowment policies in good and reliable companies. This will absorb your small savings as fast as they accumulate, and you do not have to wait for a large aggregation of small amounts before you can make an investment.

I have written good and reliable companies. This is exceedingly important, as I know from very costly experience. Assiduously avoid all cheap and unreliable companies. The danger, however, of getting into such companies is not so great as it was some years ago, as the law and the rigid surveillance of the insurance commissioners, under which they are all obliged to operate, has pretty well weeded them out of existence. But I believe there are still some weak ones that make a judicious selection somewhat necessary.

I read a short time ago one of the most intelligent, interesting and able speeches upon the subject of life insurance by the Hon. Judson Harmon, Ex-Attorney General of the United States. It is

so much to the point and so logical and forcible that I cannot refrain from quoting part of it here:

"Want soon destroys the innocence of children, the chastity of women, the honesty, loyalty and self-respect of men. Its victims become worse than savages. The history of every community shows that the vicious and criminal come chiefly from families left unprovided for before they were capable of self-support. The poor widow has to struggle for her children's bread. She cannot train or educate them. So they are likely to become the prey of chance, which is usually evil. While this country abounds in employment and opportunities which are open to all, yet nearly all our people are dependent on their personal efforts from day to day . . . The small number who possess the ability to gain a competence must have the time, and this may be cut short. And what are those who manage to lay something by from their savings going to do? There is a visionary or a rogue after every dollar, and if those are escaped it is hard to invest small amounts so as to make them both safe and productive. The purchase of life insurance furnishes the solution of the problem, and thus far the only satisfactory one. No one for whom insurance is possible has now any excuse for neglecting to secure it, when his life is a risk to others. If one does neglect it, when that is the only means of covering the risk, what Paul wrote to Timothy may well be applied to him: 'But if any provide not for his own, and especially for those of his own house, he hath denied the faith and is worse than an infidel.'" The above is the observation and comment of a keen observer, who is a student of the economic and sociologic conditions of the past and present.

After you have been in business long enough to learn whether your location is satisfactory or not; and you feel that you would like to remain permanently where you are, the best investment you could make, outside of life insurance, would be to purchase the property you occupy for yourself and family, providing you can buy it at a fair price and on satisfactory terms.

I will also call attention to another very substantial opportunity for investment, which I understand yields a good interest and has some other incidental advantages attending it, to those whose savings are small, namely, "the various building and loan associations." They are handy and convenient for the small investor and they are generally considered safe, if well managed. Occasionally we hear

of a failure, which should be a warning to all who cannot afford to take chances on the safety of their investments to be scrupulously particular to choose a thoroughly reliable company.

I do not consider building and loan associations as free from risk as life insurance, especially when care is taken to secure investments in the latter in companies whose published statements of assets and general financial condition assure us beyond doubt of their safety and stability.

There are, however, many persons whose general bad health and physical condition, family record, etc., are such as to disqualify them for admission into any good and desirable insurance company. In all such cases the building and loan associations are the next safest and best paying investment for small amounts.

There is necessarily a great diversity of opinion amongst the most experienced and judicious business men as to the merits and demerits of the various schemes and opportunities offered to investors. It would be well for you to investigate and consider well the circumstances and terms upon which you invest your money. These remarks are simply suggestive and are intended to stimulate you to make an early and prompt investment of your earnings in some safe place where they will yield you the best interest before you may thoughtlessly spend them.

When a young man makes an investment in any enterprise and takes upon himself the responsibility of making monthly, quarterly or yearly payments, it is apt to have a very steadying and salutary effect on him and it may change the current of his whole life. It has a tendency to arouse in him ambition, awaken a spirit of enthusiasm and inspire him with hopeful visions of success. He sees in the distance cheering prospects and a bright goal which he resolves to attain.

The baseball, golf, football and other games; the theatres and other places of amusement and pastime are less frequently, if at all, attended. The habitue of the beer saloon, the race-track or gambling resort, if he has been a patron, will wonder at his absence. So he settles down and determines to become an earnest pharmacist and a good business man, goes to work with energy and renewed effort; attends strictly to business and becomes frugal and economical.

OINTMENT OF MERCURIC NITRATE.¹

BY CLARENCE O. SNAVELY.²

A CONSIDERATION OF THE OFFICIAL PROCESS WITH REFERENCE TO AN IMPROVED ONE.

Among the official preparations there are many of such inestimable value in the treatment of disease that we are puzzled oftentimes to understand why physicians will look elsewhere to find remedial agents the nature of which is a closely guarded secret. But, alas! there are many of these to be found who are even satisfied to consider such knowledge alienable. When a preparation receives a place in the United States Pharmacopœia, it has surely been deemed of sufficient merit.

Probably no official preparation has been more carefully studied than the familiar ointment of mercuric nitrate, or, as it is more commonly called (on account of its color) citrine ointment. Not only is it therapeutically of great importance, but also none the less pharmaceutically and chemically interesting. It is then with reluctance we would attempt to suggest changes relative to a preparation than which there is none more difficult in the United States Pharmacopœia to make, and which might present, after suggesting changes, similar difficulties to encounter by all who find such in the present official formula.

In this ointment the base is a butyraceous substance, obtained through the action of nitric acid upon lard oil. The classic researches that have been made upon oils and fats from time to time have shown us that the effect of nitric acid upon fixed oils depends not only upon composition of the latter, the presence of coloring matter, etc., but likewise upon the strength of the acid and the *temperature*.

That principle of fixed oils, whether of animal or vegetable origin, which is liquid at ordinary temperature, is termed *olein*, or *elain*. It is extremely difficult to obtain olein pure, as it is almost

¹ Read at the twenty-seventh annual meeting of the Pennsylvania Pharmaceutical Association, June 21-23, 1904.

² The authorship of this paper is credited to Mr. J. H. Redsecker, Lebanon, Pa., in the recent Proceedings of the Pennsylvania Pharmaceutical Association, but this is erroneous, as we are assured by Mr. Redsecker, he merely having presented the paper in Mr. Snavely's behalf.

invariably accompanied by the concrete principles of oils, either stearin or palmitin, or both. A glance at the empirical formula of olein $C_{57}H_{113}(OC_{18}H_{33}O)_3$ at once reveals to us the fact that it is an oleate of the triad radical glyceryl, C_3H_5 .

By reaction with nitric acid, or more exactly speaking, under the influence of nitrous acid fumes, olein is converted into a deep yellow, butyraceous mass. If this be treated with hot alcohol, a deep orange-red oil is dissolved, and a peculiar fatty matter remains, called elaidin. This is white, crystalline, fusible at $34^{\circ} C.$, and appears to be isomeric with olein. The solid fat then which forms the base of our ointment is elaidin, accompanied by red oil. The result of the action of nitric acid upon lard oil, then, is a mutual decomposition of the acid and the fat, producing nitrogen dioxide, this becoming the tetroxide, and the transformation of triolein into its isomer elaidin. In the next place the reaction is characterized by a violent evolution of volatile products. These volatile products are¹ a number of the volatile fatty acids of the series $C_nH_{2n}O_2$, from acetic to capric inclusive, together with the dibasic acids, adipic and sebacic, of the series $C_nH_{2n-2}O_4$. Unquestionably the most desirable starting point for the production of elaidin and red oil is olein of animal origin, and recognized in the United States Pharmacopœia as lard oil.

The higher-priced fats frequently suffer adulteration with cheaper ones, and owing to the similarity of composition, such admixtures are difficult to recognize. The fact that dealers in petroleum oils sell large quantities of lard oil has, no doubt, led many pharmacists to look about for substitutes for lard oil in the preparation of this ointment, presuming that lard oil would be adulterated to a shameful degree; but this oil, and that, too, of excellent quality, is to be had notwithstanding that fact.

Several years ago I set out to procure samples of lard oil to be used in making citrine ointment, since up to this time, and I believe for twenty-five years, this ointment had been made with fresh unsalted butter by Dr. Geo. Ross & Co. The very first sample, upon critical examination, proved of excellent quality; whereupon I procured a larger quantity of the oil. Lard oil is defined by the Pharmacopœia as "A fixed oil expressed from lard at a low tem-

¹ Witthaus, *Manual of Chemistry*, p. 266.

perature." Its properties are those of a colorless or pale-yellow oily liquid, having a slightly fatty odor, a bland taste, etc. Its composition is chiefly olein, with variable quantities of palmatin and stearin.

It seems, too, that the proposed changes in the bases of the citrine ointment have resulted from a disregard of several important facts. First, that we have in lard oil a colorless or pale-yellow substance, and forgetting that the effect of nitric acid upon fixed oils depends not only upon their composition, but also upon the presence of coloring matter. In the second place, the comparative simplicity of the product excluding as far as possible complicated and not thoroughly understood reactions. Third, that these existing natural impurities, stearin and palmatin, permitted by the United States Pharmacopœia, can be augmented to a certain degree, if it should be desired, without very materially altering or introducing more complex reactions. Such a procedure as the latter is, however, under no circumstances recommended.

Many fats and mixtures of fats have been proposed to replace lard oil, and resulting, perhaps, in as many failures to produce a satisfactory product; just what happens when temperature is disregarded and the thermometer ignored in carrying out the official process. Suffice it to mention but a few: Olive oil and lard, lard, butter, lard oil and lard, etc.

Not infrequently is there lodged complaint against the official ointment that it remains too soft, which may be overcome in a measure by the use of a formula given below. The proportions¹ of lard and lard oil used by a certain experimenter, who found after a consideration of various fats and mixtures of fats, including the one hinted at above, none as satisfactory as lard oil, a conclusion in which we certainly concur, could not be ascertained, or they should have been used here for a comparative study.

The official formula as it would stand modified follows:

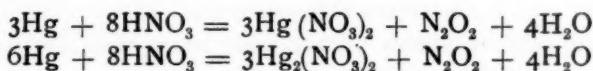
Mercury	70 grammes.
Nitric acid	175 "
Lard (anhydrous)	150 "
Lard oil	610 "

"Heat the lard oil, in a glass or porcelain vessel, to a tempera-

¹ Reichard, AM. JOUR. PHARM., Vol. 55, pp. 438 *et seq.*

ture of 100° C. (212° F.); then withdraw the heat, gradually add 70 grammes of nitric acid, and, when the reaction moderates, reapply the heat until effervescence ceases." (It may now be stirred gently once or twice while cooling, but not vigorously, as has been recommended.) "Then allow the mixture to cool to 40° C. (104° F.). Having dissolved the mercury in the remainder of the nitric acid with the aid of sufficient heat to prevent the solution from crystallizing, add this solution to the mixture." Now raise the temperature to 60° C., add the lard, which at this temperature will melt and permit of thorough incorporation, and maintain the temperature until no further evolution of gas takes place, thereby obviating the tendency to form a spongy mass. "When the mass has become entirely cold, mix it thoroughly by trituration, avoiding the use of a metallic spatula."

The reaction for the production of mercuric nitrate in the process is as follows:



If the solution of the metal is effected in contact with the acid at the ordinary temperature,¹ it is positively certain, as seen by the foregoing reaction, that both mercuric and mercurous nitrate form, consequently the ointment receives both nitrates from the beginning. At the same time there is produced the colorless gas nitrogen dioxide (N_2O_2). When this colorless gas comes in contact with air, it unites with its oxygen, forming red fumes of the tetroxide (N_2O_4). Now upon mixing and stirring this nitric acid solution of mercuric nitrate with the fat, this nitrogen dioxide takes up oxygen from the air that is stirred into the ointment (for the more it is stirred the brighter yellow will be its color), and, whatever may be the effect of this gas as a most energetic oxidant, we are sure of the production of a decidedly more disagreeable odor than is given off under certain other conditions by the fatty base of this ointment.

¹ It will, however, be found that when the solution of mercury in nitric acid is effected at the temperature of a water-bath or higher, and maintaining temperature about twenty minutes, no precipitation or cloudiness will occur in the solution on the addition of water, or of diluted hydrochloric acid (absence of mercurous salt).

We come now to the suggestion¹ long since offered, and at one time made use of, to remedy the difficulty in producing a solution of mercuric nitrate to replace that in the official formula.² Rother first suggested the use of red mercuric oxide dissolved in nitric acid to produce this solution. He had also pointed out that the solution prepared with mercury and nitric acid is in reality one of mercuric nitrate and mercurous nitrate, as our reactions above showed. He, too, has been accused of failing to state his reason for using a solution prepared by dissolving red mercuric oxide in nitric acid; but it can readily be seen that if we are to have an ointment of mercuric nitrate, it were far better we should start with a comparative simple solution and one containing only mercuric nitrate, than with the complex solution containing mercury in both its mercurous and mercuric states.

This investigator has pointed out another modification.³ In this he proposes to use a larger portion of the nitric acid for the oxidation of the fat. By such treatment the oxidation of the fatty matter proceeds to the utmost capacity of nearly all the available nitric acid whereby violent reaction upon the addition of the nitrate solution to the nearly cold fat is precluded.

The formula to be suggested and recommended will, it is hoped, appear as a most logical deduction, while its manipulation must necessarily be productive of more uniform results. Notwithstanding the fact that it has been commented on before, the reasons here adduced in urging its adoption differ widely from those used before.⁴

Such is the formula which follows:

Red mercuric oxide	75.5 grammes.
Nitric acid	175 " "
Lard oil	760 " "

Heat the lard oil in a clean glass or porcelain vessel, to a temperature of 100° C. (212° F.), or the dish may be placed into a bath of hot water until the temperature of the oil has risen to about 100° C. (212° F.); then withdraw the heat, gradually add 100 grammes of nitric acid, and, when the reaction moderates, reapply

¹ Rother, AM. JOUR. PHAR., Third Series, Vol. 18, pp. 417 *et seq.*

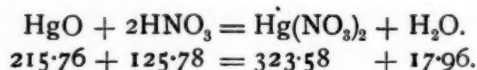
² England, AM. JOUR. PHARM., Vol. 69, pp. 209 *et seq.*

³ Rother, AM. JOUR. PHARM., Third Series, Vol. 18, pp. 417 *et seq.*

⁴ England, AM. JOUR. PHARM., Vol. 69, p. 211.

the heat until effervescence ceases. Positively, at this point in the process, the liquid should not be disturbed by stirring. Now, when all the nitric acid has been decomposed, the temperature can be considerably raised without causing further effervescence, and the liquid simply boils. This elevated temperature may be maintained for ten or fifteen minutes, whereby the volatile fatty products will be more or less completely dissipated. Then allow the mixture to cool to about 40° C. (104° F.). Having dissolved the red mercuric oxide in the remainder of the nitric acid without heat, by adding the former to the latter in small portions, add this solution to the nearly cooled fatty product. Now raise the temperature of this mixture to 60° C., and maintain such until no further evolution of gas takes place, then withdraw heat entirely. When the mass has become entirely cold, mix thoroughly by trituration, preferably by the use of a glass rod.

The reaction in this process for the production of mercuric nitrate is as follows :



From the above reaction it will be apparent there still remains an excess of nitric acid over the amount required to bring the red mercuric oxide, the equivalent of the amount of metallic mercury in the official formula, into solution, but not so greatly in excess as it is found in the official process.

With the production of mercuric nitrate alone in this way, there is formed a little water, which, however, can be of no practical moment. It is not at all possible to introduce nitrogen tetroxide when this solution is used, though it does inevitably result from the mutual decomposition of the fat and acid; but in the latter instance its most energetic oxidizing action is, by reason of the elevated temperature, almost instantly utilized. When, on the other hand, this substance is introduced at a very much lower temperature the finished product gives off from the beginning rather disagreeable odors.

Even by permitting a larger portion of the nitric acid to react, with the lard oil the reaction is not final. Upon the addition of the acid solution of mercuric nitrate further action takes place far less intensely than when the solution with larger excess of acid is

added; whereupon the chances of reduction of the mercuric compound are fewer. The mercurous compound, if present, would even be more readily decomposed.

Unfortunately, of necessity, there remains to be noted here the fact that not infrequently red mercuric oxide is not completely soluble in nitric acid. This insoluble residue bears a resemblance to brick-dust. At the same time the slight advance in the cost of the oxide over that of the metal itself must be mentioned; this, certainly, should not militate against it, when its advantages are correctly estimated.

The salient points in the proposed process are:

- (1) The use of a definite solution of mercuric nitrate.
- (2) The use of a larger proportion of nitric acid to oxidize the fat.
- (3) The production of an ointment true to the pharmacopœial name—Ointment of Mercuric Nitrate.
- (4) A product to a greater degree devoid of odor.
- (5) An ointment, assuming the existence of a combination of mercury with elaidic acid,¹ which, from the viewpoint of therapeutics, is physiologically more active, while it exists in its mercuric state alone, than when accompanied by a mercurous compound.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

TEN LECTURES ON BIOCHEMISTRY OF MUSCLE AND NERVE. By W. D. Halliburton. With illustrations. Philadelphia: P. Blakiston's Son & Co., 1904.

This book contains the special lectures on the chemical aspect of muscle and nerve physiology, delivered by Professor Halliburton in London and New York City in 1903-1904. Professor Halliburton is well known for his own researches as well as those of his students on this subject, and it is extremely fortunate that he has brought together the results as contained in some forty papers which are more or less scattered in different publications, and correlated them so that they may be of value to the animal physiologist and physician.

The subjects treated are: composition of muscle; heat vigor of muscle, euglobulins and pseudoglobulins; the pigment of muscle, properties of nucleo-proteids, the ferments of muscle; the extrac-

¹ Witthaus, *Manual of Chemistry*, p. 226.

tives and salts of muscle; chemical changes accompanying the contraction of muscles, chemistry of tendon; the chemical composition of nervous tissues; metabolism in nervous tissues; the coagulation temperature of the nerve-proteids, and its bearing on the question of: (1) the galvanometric response of nerve under varying temperatures, (2) heat contraction in nerve, and (3) hyperpyrexia; the chemical pathology of certain degenerative nervous diseases; degeneration and regeneration of nerves.

The subjects are discussed in a most interesting and instructive manner, and the book will do much towards placing the treatment of disease on a still more scientific basis.

MANUAL OF PHYSIOLOGICAL AND CLINICAL CHEMISTRY. By Elias H. Bartley. Second edition, revised and enlarged. With 47 illustrations. Philadelphia: P. Blakiston's Son & Co., 1904.

There seems to be considerable difference of opinion as to just what should be the nature of the chemistry taught in medical schools. In successfully teaching applied chemistry it is important that the student appreciate the fundamental facts in physics and chemistry, and that he have good laboratory courses in elementary physics and chemistry. With this as a foundation, it will largely depend upon the training and duties of the professor as to whether he will limit himself to the teaching of the examination of blood, urine, fæces and milk, or whether toxicological and other sanitary analyses will be included. Perhaps it is not stating it too broadly to say that the medical man needs chemistry as much as he needs physiology. While he requires clinical chemistry, as considered by Dr. Bartley in this book, he also requires a broad knowledge of physiological chemistry, so that he can appreciate the effects of poisons and their antidotes, the action of medicines and their proper combination, etc.

The second edition of Dr. Bartley's chemistry is devoted to the examination of blood, urine, contents of stomach, fæces and milk. The subject-matter has been brought up to date, and will be found of value to the physician and analyst.

A SYSTEMATIC HANDBOOK OF VOLUMETRIC ANALYSIS, or the quantitative estimation of chemical substances by measure, applied to liquids, solids and gases. Adapted to the requirements of pure

chemical research, pathological chemistry, pharmacy, metallurgy, manufacturing chemistry, photography, etc., and for the valuation of substances used in commerce, agriculture and the arts. By Francis Sutton. Ninth edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co., 1904.

This work by Sutton is so well known that it hardly requires more than a mention. Dr. Knecht's process for the estimation of azo dyes, nitro- and nitroso-compounds by the use of titanous chloride is given on pages 366-369. A condensed record of analyses of various compounds existing in gas liquor and the methods of determining them as carried out by the Chief Inspector under the Alkali Works Regulation Acts has been included in this new edition (p. 77, etc.). Sodeau's gas apparatus, a modification of Macfarlane and Caldwell's apparatus, and adapted for gas analysis of the highest accuracy is described on pages 569-572. Throughout the book are numerous references to recent literature indicating that the book has been brought up to date, and thus it continues to be one of the most valuable all-around laboratory manuals on industrial chemistry in its many phases.

THE ART OF COMPOUNDING. A text-book for students and a reference book for pharmacists at the prescription counter. By Wilbur L. Scoville. Third edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co., 1904. \$2.50, net.

One of the most hopeful signs in American pharmacy is the disposition of authors to write books which contain not only a new presentation of the subject but something also in the application, at least, that is new. Scoville's book has now gone through several editions, each of which has been wide awake to the present tendencies and needs of the pharmacist. One of the most happy introductions is the chapter on "Sterilization," etc. This is well written and is deserving of careful attention by the pharmacist. When the brewer, the bottler and even the farmer are practically carrying on work involving modern researches in bacteriology, surely the pharmacist should know how to preserve his drugs and preparations and dispense prescriptions that are free from harmful micro-organisms.

The chapter on tablets and the manufacture of compressed and triturate tablets will also be found valuable, as many pharmacists

are using tablet machines in connection with prescription work. The chapter on emulsions has been largely rewritten and includes the latest theories of emulsification, and also improved methods and formulæ for commercial emulsions.

THE AMERICAN YEAR-BOOK OF MEDICINE FOR 1905. A Yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from journals, monographs, and text-books of the leading American and foreign authors and investigators. Arranged, with critical editorial comments, by eminent American specialists, under the editorial charge of George M. Gould. In two volumes. Volume I, including *General Medicine*. Two octavos of about 700 pages each, fully illustrated. Philadelphia and London: W. B. Saunders & Co., 1905. Per volume: Cloth, \$3 net; half morocco, \$3.75 net.

In the present volume Dr. Gould has the co-operation of a corps of able collaborators who have summarized the researches in the different departments of medicine during the past year. Instead of these researches being disconnected they are brought into relation with each other and thus furnish excellent reading. The researches are brought under the following heads: General medicine; pediatrics; pathology and bacteriology; nervous and mental diseases; cutaneous diseases and syphilis; materia medica, experimental therapeutics and pharmacology; physiology; legal medicine; public hygiene and preventive medicine; and physiologic chemistry.

Considering the excellence of the work, the moderate price of the book, and the fact that much of the matter is of interest to biologists, chemists, analysts and lawyers, as well as members of the medical profession, it ought to appeal to a large number.

THE ELEMENTS OF CHEMISTRY. By M. M. Pattison Muir. Philadelphia: P. Blakiston's Son & Co., 1904.

The object of this work is to prepare the reader or student for research work. A good idea of the character of the work may be obtained by an enumeration of the subjects treated: (1) Some of the marks of those changes the elucidation whereof is the subject of chemistry. (2) The study of composition; the laws of chemical combination. (3) The determination of the combining weights of elements, and the reacting weights of compounds; chemical sym-

bolis and formulæ. (4) Introduction to the study of interactions, and the connections between them and compositions; acids, basic and acidic oxides; metallic and non-metallic elements. (5) Chemical nomenclature. (6) Oxygen and hydrogen. (7) Compounds formed by the union of hydrogen and oxygen; water and hydrogen peroxide. (8) Hydrogen and some of its compounds. (9) Sulphur and some of its compounds. (10) Potassium and sodium and some of their compounds. (11) Iron and a few of its compounds. (12) The chemical character of metals and non-metals illustrated by certain compounds of manganese and some compounds of chromium. (13) Chemical characters of elements illustrated by oxides of antimony, arsenic, bismuth and tin. (14) Chlorine, bromine, fluorine, and iodine; and some of their compounds. (15) Oxidation and reduction; oxidizers and reducers. (16) The molecular and atomic theory. (17) Some applications of the molecular and atomic theory, chiefly to classes of facts already considered. (18) Isomerism and structural formulæ. (19) The periodic law. (20) The measurement of the thermal values of chemical changes. (21) Phosphorus; its oxides, hydrides, and some of its acids. (22) Carbon, silicon and a few of their compounds. (23) Magnesium, zinc, cadmium, and mercury; calcium, strontium and barium. (24) Some of the physical and chemical properties of copper, lead and aluminium. (25) A few physical and chemical properties of palladium and platinum. (26) Argon and its companions. (27) Short descriptions of the general chemical characters of each of the eight groups of elements.

We rather like the treatment of the subject of chemistry as given by Muir. There is a philosophic consideration of the subject which is too often lost sight of in the practical applications that are usually demanded and which have made chemistry so fascinating to students and the public alike. The author has collected a vast amount of information and presented it in a very interesting and instructive manner.

A PORTRAIT OF PROF. CHARLES F. CHANDLER was presented to Columbia University by the Alumni Association of the Schools of Science of Columbia University on Thursday evening, April 27th. Professor Chandler is one of the founders of the School of Mines of Columbia University and this is a worthy tribute to his attainments.

PHILADELPHIA COLLEGE OF PHARMACY.

MINUTES OF THE ANNUAL MEETING.

The annual meeting of the members of the College was held on March 27, 1905, at 4.00 P.M., in the Library. The president, Howard B. French, presided. Twenty-three members were present.

The minutes of the quarterly meeting held December 27, 1904, were read and approved. The minutes of the Board of Trustees for the meetings held December 6, 1904, January 3d, January 17th, (special meeting), February 7th, were read by the Registrar and approved.

The President read his annual report, from which are abstracted the following items: The walls, ceiling and woodwork of the pharmaceutical laboratory were repaired and painted; the seats in the lecture-rooms were re-varnished and numbered, and re-wired for electric lighting; a general overhauling of all electric wiring throughout the buildings was made, and, after inspection, has been approved by the Board of Fire Underwriters; a system of intercommunicating telephones was placed throughout the building, and has materially added to the comfort of the faculty and Registrar; the exterior woodwork of the front building has been painted and put in good order; these improvements put your buildings in a fairly good condition.

It is a matter of interest to note that Prof. Samuel P. Sadtler has completed twenty-five years of service in the College.

The new course in pharmaceutical arithmetic, which was made compulsory for the first-year students, has proven a very desirable addition.

The supplementary course for the third-year students, which has just gone into effect, is expected to prove of material advantage to the students.

A new system of tickets was instituted. One ticket is now issued by the Registrar, which takes the place of the six formerly used. This change has proven exceedingly satisfactory.

Forty-one more students are receiving instruction at the College this year than last. Eighty-one students have availed themselves of special instruction in the chemical laboratory. A number of the students are receiving additional instruction in the pharmaceutical laboratory, special course in bacteriology and in technical microscopy.

The College has lost by death during the year five honorary members and three active members. During the year eight active members and five associate members were elected. There have been two resignations.

During the year the "Troth" scholarship was established by Mrs. John R. Drexel in honor of her father, William P. Troth, and her grandfather, Henry Troth. The latter was an early member of the College, and served as vice-president from 1829 to 1841.

In educational matters the College has maintained its former high rank among pharmaceutical colleges, and the hope is expressed that the time is not far distant when research laboratories may be established in connection with the College.

The activity and able management of the Alumni Association is commended.

Reports of committees were then given as follows:

PUBLICATION COMMITTEE—Samuel P. Sadtler, chairman, reported: There has been an increase in the amount received from subscriptions, the sale of back numbers and reprints. On two occasions larger editions of the JOURNAL were printed. The number of unsold volumes on hand is estimated at 1,975, covering the period from 1829 up to the present time. There is a constant demand for back numbers, and as we have not a complete set of the JOURNAL for sale at the present time, we would particularly request the members to let the committee know when any volumes for 1829, 1830, 1831, 1833, 1834, 1835, 1842, 1846, 1847, 1856, 1865, 1876, and the four preliminary numbers published previous to 1829, can be obtained.

During the year back numbers have been presented by H. N. Rittenhouse, James T. Shinn, George J. Scattergood and Mr. Zeller.

EDITOR'S REPORT.—Prof. Henry Kraemer said that during the past year there has been no lack of original matter for publication; about seventy original papers were printed, being an average of about five or six papers an issue. They have nearly all been of a high order of merit, and have covered a wide range of subjects.

COMMITTEE ON PHARMACEUTICAL MEETINGS.—Joseph P. Remington read the report of the committee. "The meetings have been held regularly during the year. In compliance with the wishes of some of the members, three of the meetings have been held in the evening, and, judging from the attendance, it would seem desirable to hold some of the meetings in the future in the evening. The

meetings this year have been more or less in the nature of symposiums, one principal topic being taken for discussion and considered from different points of view. The meetings have been unusually interesting and profitable, and we are indebted to those who have contributed papers, taken part in the discussion, or in other ways helped to make them a success. The committee not only urges the members of the College to attend these meetings, but would welcome any suggestions tending to increase interest in them."

LIBRARIAN'S REPORT.—Thomas S. Wiegand said: "There have been added to the Library thirty-five new-bound volumes by purchase, and 105 volumes bound; these latter being mostly exchanges received for the *AMERICAN JOURNAL OF PHARMACY*. There has been expended for books and binding, \$552.09. The Library is frequently consulted by persons desiring information, finding works on our shelves which they cannot find elsewhere in the city."

CURATOR'S REPORT.—Joseph W. England said: "The Museum of the College is in good condition. When additional shelf room is secured it might be well to consider the propriety of adopting a standard-sized container for specimens, and re-arranging the collection. With the advent of the forthcoming issue of the *U. S. Pharmacopœia*, it will be necessary to bring the students' collection of vegetable drugs in the students' reading-room up to date."

The Historical Committee reported verbally through Professor Remington that the work was being rapidly pushed.

Under new business, Professor Remington read the resolutions presented by the committee, to whom had been referred the subject of preparing resolutions on the death of Prof. Albert B. Prescott and Dr. Frederick Hoffman, honorary members of the College, which were adopted, and the Secretary was directed to forward copies to the Faculty of the University of Ann Arbor, Mich., and to the widows of our deceased members.

The election of officers and committees followed. Joseph W. England and Jacob M. Baer were appointed tellers, who, after a ballot, reported the election of the following: President, Howard B. French; First Vice-President, Mahlon N. Kline; Second Vice-President, R. V. Mattison; Treasurer, James T. Shinn; Corresponding Secretary, A. W. Miller; Recording Secretary, C. A. Weidemann; Curator, Joseph W. England; Librarian, Thomas S. Wiegand, and

Editor, Henry Kraemer. Trustees: Joseph P. Remington, C. Carroll Meyer, Gustavus Pile and Aubrey H. Weightman. Publication Committee: Henry N. Rittenhouse, Samuel P. Sadtler, Wallace Procter, Henry Kraemer, Joseph W. England, Joseph P. Remington and Martin I. Wilbert. Committee on Pharmaceutical Meetings: Joseph P. Remington, C. B. Lowe, Henry Kraemer, William L. Cliffe and William McIntyre.

The President appointed C. B. Lowe, Mahlon N. Kline, M. I. Wilbert, William McIntyre and Jacob M. Baer delegates to the meeting of the Pennsylvania Pharmaceutical Association to be held at Bedford Springs, June 20-22.

C. A. WEIDEMANN, M.D.,
Recording Secretary.

ABSTRACTS FROM MINUTES OF THE BOARD OF TRUSTEES.

JANUARY, 1905.—Committee on Property reported that the greater part of the work attending the installation of a telephone system throughout the building had been done, and the phones would be in working order in a few days.

John W. P. Outerbridge, of Flatts, Bermuda, was elected an associate member.

FEBRUARY, 1905.—John J. Coleman, of Wheeling, W. Va., was elected to active membership.

MARCH, 1905.—Committee on Library reported a number of additions to the Library, among them being the "Centenary of the Paris School of Pharmacy," a very valuable work, being splendidly illustrated and descriptive of their School of Pharmacy and allied branches. The death of Prof. A. B. Prescott, Dean of the University of Michigan, was reported. John F. Hancock, of Baltimore, Md. was elected to associate membership.

PHARMACEUTICAL MEETING.

The regular pharmaceutical meeting of the Philadelphia College of Pharmacy was held on Tuesday afternoon, April 18th, with Wm. McIntyre, a well-known member of the College, in the chair.

Joseph L. Lemberger, Ph.M., of Lebanon, Pa., was the first speaker on the programme, and read an interesting paper on "The Cultivation of Saffron in Lebanon County, Pa.," exhibiting samples

of the home-grown product and of the commercial article in connection therewith (see page 209).

During the discussion that followed Mr. Lemberger said that one of the favorite ways of adulterating saffron is to add some product to it which has been colored to resemble it. He said, however, that the adulterant, which is frequently colored by the use of aniline dyes, can usually be detected by placing a sample in the mouth, a very different color being imparted to the saliva than when true saffron is similarly tested. It was also noted that in France saffron which has been leached by the dyers of silk is added to the better grades. In answer to a question by Dr. Weidemann, Mr. Lemberger said that among the Pennsylvania Germans saffron is not only a common household remedy, but is also used as a flavoring and coloring material in cooking.

At this point Professor Kraemer exhibited a sample of cake which had been colored with saffron, and which was of a beautiful golden-yellow color. The sample was presented to him by Millicent L. Renshaw, P.D.

Mr. Wilbert alluded to a nursery rhyme which is still taught the children in the German families of the Mohawk Valley, and in which saffron is mentioned as an essential ingredient of good cake. He also referred to some experiments made by the late Charles A. Heinitsh, of Lancaster, Pa., in the gathering of saffron, whereby he found that 300 stigmas weighed 15 grains, and that it took 50,000 flowers to produce 1 pound of the drug. At that time Mr. Heinitsh estimated that about 40 pounds of the drug were produced in the two counties of Lancaster and Lebanon, Pa., annually.

Professor Lowe spoke of the work done by the late Professor Maisch in the detection of the adulterants of saffron, and said that among these was meat fibre, several factories in Germany having at one time been engaged in the manufacture of this adulterant.

Mr. Boring said that some years ago he had purchased a pound of saffron which was infested with animal life, and this he supposed to have been due to the presence of meat fibre.

Mr. Lemberger said that he had never seen but one sample of the drug which was adulterated with meat, and that owing to the exposition of this fraud, he thought it was probably not practised afterward.

Professor Kraemer alluded to some experiments which he had

made some years ago for determining the amount of adulteration in commercial saffron. It was found by the use of sulphuric acid, which turns the stigmas blue, that the better grades of commercial saffron contained as high as 92 per cent. of stigmas, while the cheaper grades contained as low as 45 per cent.

M. I. Wilbert, Ph.M., read a paper entitled "The Past, Present and Future of Pharmaceutical Titles in America." (See page 215.)

In discussing the paper, Dr. Weidemann said that he had also noticed that the title Doctor of Pharmacy did not seem to be generally recognized by the public, nor was it generally used by the graduates themselves. Sometimes it appeared on their signs, or on prescription blanks furnished by them. Likewise the old-time honored title Graduate in Pharmacy, which he rather preferred, appeared not to be much used.

Dr. Lowe thought that perhaps one reason for the graduates having the title Doctor of Pharmacy not using it more, was because they were afraid of opposition from physicians or of giving offense to them by the use of a title which might tend to the pharmacist being consulted for medical advice.

(Prof. F. P. Stroup said that it was probably modesty on the part of some graduates. The title signified more, and, therefore, more would be expected from the pharmacist having it.)

Mr. Wilbert said that with the establishment of departments of pharmacy in the universities, and also with the establishment of elective courses in science in the universities leading to the degree of Bachelor of Science, it is to be expected that the standard of pharmaceutical education will be raised, and that the future pharmacist will not only be a well-educated, but highly scientific man. He was of the opinion that the pharmacist should be educated along with other scientists, and suggested the title of Doctor of Science in Pharmacy as being an appropriate university degree for those students who have taken the special pharmaceutical courses.

A paper by J. B. Moore, on "The Importance of Insurance to the Pharmacist," was read in the absence of the author by E. Fullerton Cook, P.D. (See page 224.)

In opening the discussion on the paper Dr. Lowe said that he did not consider it advisable to take out a straight life policy. He said there was very little difference in the premium on a life policy and one on an endowment policy, and that the latter could be paid up

in a term of years. He did not advise too short a term, however, as the premiums are higher and it is well to let the insurance companies bear some of the risks.

Theodore Campbell, who was a sufferer from fire a few years ago, expressed himself as highly in favor of insurance. He said that it was important to insure fixtures as well as stock. He also emphasized the necessity for taking stock often, as this furnishes the only reliable basis on which the insurance company can estimate the loss. Mr. Campbell said that he understood that a few of the druggists in Philadelphia take stock every year, but that about 75 per cent. of them never do this.

Mr. Evan T. Ellis said that he believed in insurance provided the company was known to be reliable. He said that a director of the Penn Mutual Company had told him that policy holders get their money back with about 4 per cent. interest.

Mr. Boring said that if all of the losses and disappointments to policy holders could be published he thought we would have the Government back of the insurance business.

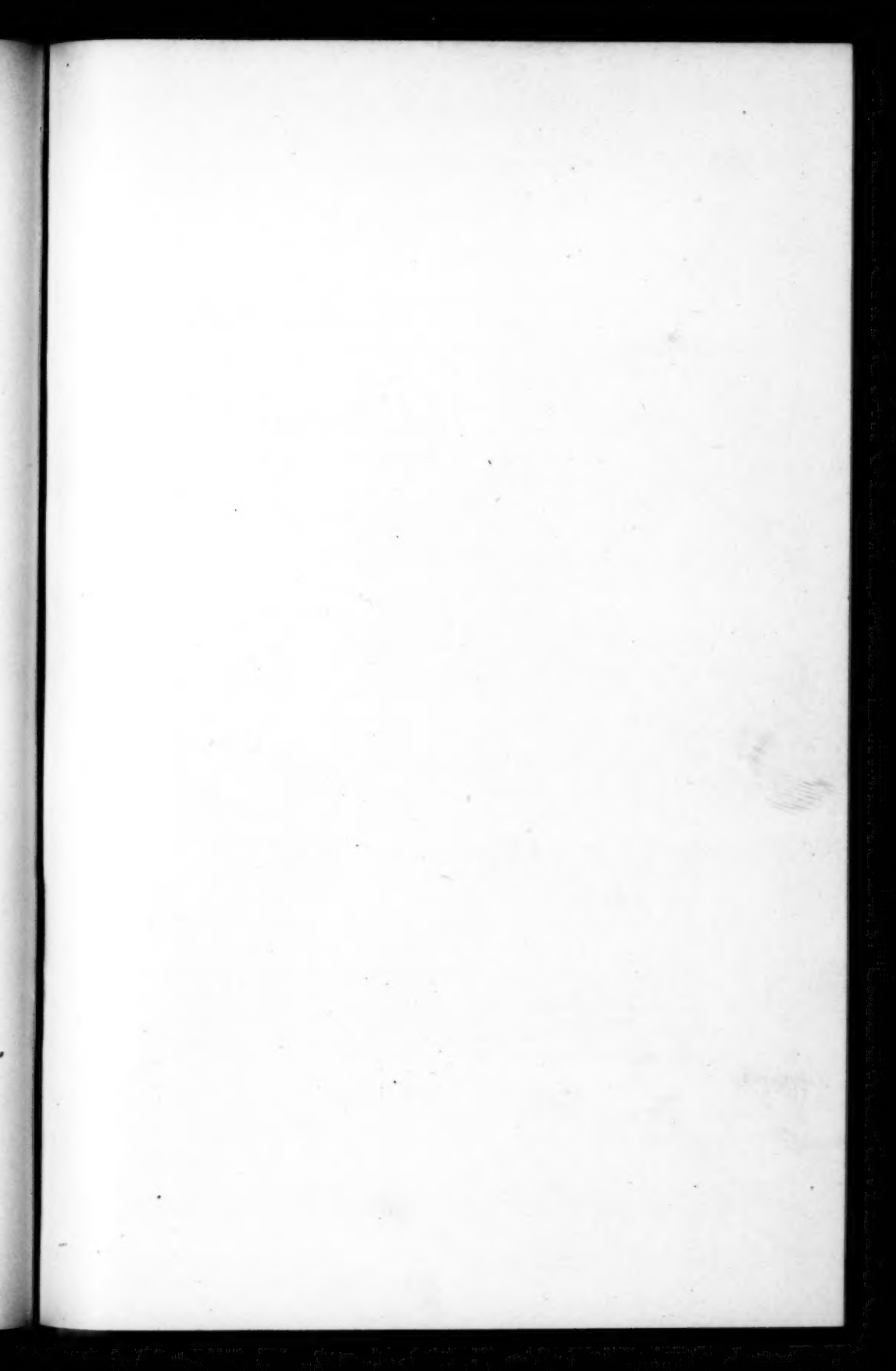
Mr. Cook spoke of an insurance company which enables its policy holders to invest in Government bonds, thus giving them additional security.

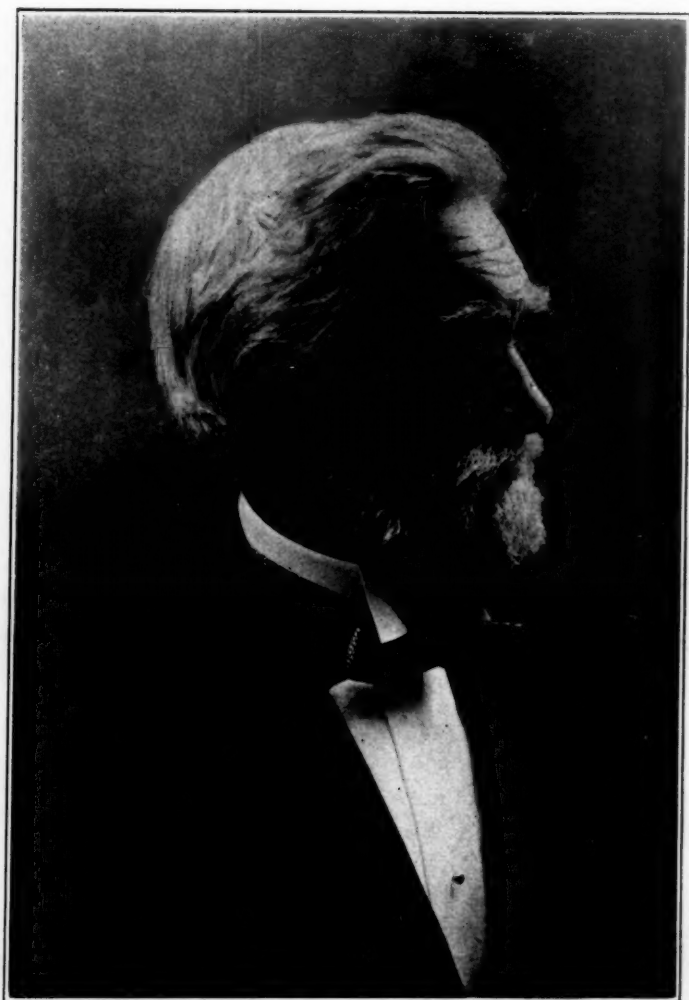
Mr. McIntyre said that it was a dangerous policy for a young man to become a capitalist rather than a business man.

A jar of the fruit from which nutmegs are derived, which was presented by James W. Gladhill, a graduate of the college, was exhibited.

In this connection Professor Kraemer called attention to some plant specimens which he had preserved by means of a saturated salt solution. He said that while making some experiments with seaweeds at the Marine Biological Laboratory (Wood's Hole, Mass.) for extracting the green coloring substance, he found that by first treating the material with salt solution and then with alcohol the chlorophyl could be extracted. He had found that the salt solution was also useful as a preservative, as it appeared to preserve the color better even than formaldehyde, and said that it could probably be recommended by pharmacists as a preservative for fruits, flowers and vegetables.

FLORENCE YAPLE,
Secretary pro tem.





ALBERT BENJAMIN PRESCOTT.
1832-1905.